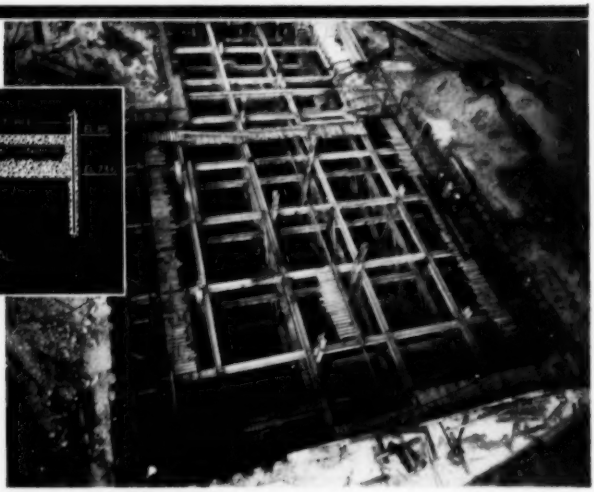
ACI News Letter

Vol. 28, No. 1 JOURNAL of the AMERICAN CONCRETE INSTITUTE July 1956

Owner: City of Miami, Florida
Engineers: Connell & Rader Associates, Miami
Contractor: DeFonce Construction Co., Inc.

EXCAVATION FULL OF WATER **was situation met by INTRUSION-PREPAKT. This was the best that usual dewatering methods could do.**

Conventional dewatering methods failed



DRY COFFERDAM **was produced by underwater placement of PREPAKT concrete cofferdam seal, later used as base for the structural slab of the building.**

but Intrusion-Prepakt had the answer

INTRUSION-PREPAKT solved a difficult dewatering problem at the N. E. 9th St. Sewage Pumping Station, Miami, Florida. A close-to-the-surface water table plus a porous lime rock substrata produced a water flow that the contractor could not lick with usual methods.

A PREPAKT concrete cofferdam seal, placed underwater directly on rock, provided a water-tight joint and a tight structural tie-in with the sheet piling. This halted water leakage and resulted in a dry cofferdam.

PREPAKT concrete is made by consolidating preplaced aggregate with INTRUSION mortar—a method which eliminates dilution and other weaknesses to give a strong, monolithic structure. On this job, the PREPAKT seal withstands a 36-foot hydrostatic head. Made underwater or in the dry, PREPAKT concrete is of superior quality, has virtually no shrinkage, embeds reinforcing thoroughly and seals without need for after-grouting.

To save time and money on your next difficult foundation or structural concrete problem, contact: INTRUSION-PREPAKT, Inc., Room 779-N, Union Commerce Bldg., Cleveland 14, Ohio. In Canada: INTRUSION-PREPAKT, Ltd., 159 Bay St., Toronto, Ontario.

INTRUSION-PREPAKT, INC.

OFFICES IN PRINCIPAL U.S. AND FOREIGN CITIES

Intrusion and Prepakt are trade marks of Intrusion-Prepakt, Inc., whose methods and materials are covered by U. S. Patents Nos. 2313110, 2653004, 2674302 and others, also patents pending

ACI

News Letter Contents

July 1956

On the Cover—Alaska's largest hangar. Designed and constructed under supervision of the Alaska District Corps of Engineers for the U. S. Air Force, at Eielson Air Force Base in the Fairbanks area. Built of concrete, 384 ft long and 353 ft wide, actual hangar space is 300 x 300 ft, with two floors of maintenance shops and offices. The control tower is 110 ft high. Contractors were Peter Kiewit Sons' Co. of Seattle and Fairbanks. The $4,172,589 construction job required 2 years to complete.

U. S. Army Photo

A First for ACI 3

Recommended Standards for Bibliographies 4

Stud Welding and Coil Ties for Securing Forms 12

Adjusting Stress Distribution in Pre-Tensioned Elements 16

ASC Outlook 17

Positions and Projects 21

Looking Ahead 23

Honor Roll 24

Who's Who

- Subcommittee III, Committee 325 25
- Richard C. Elstner and Eivind Hognestad 25
- Thomas Cholnoky 25
- George W. Housner 26
- James A. Cheney 26
- S. J. Chamberlin 26

New Members 27

Tools, Materials, Services 29

Discussion 32

List of Advertisers 34

A FIRST FOR ACI

This July number of the JOURNAL of the American Concrete Institute is the first such issue in the present series published by ACI. It marks a change from ten issues per year, which has been the schedule since 1946, to 12 issues per year beginning *Proceedings* V. 53, which is V. 28 of the JOURNAL. Beginning in November, 1929, ten issues per year was the rule until difficult times in 1933 required a reduction to six issues per year which was followed until the change in 1946.

In the 27 years of publication of the modern ACI JOURNAL through June, 1956, 1079 papers, reports, and standards have been made available to the profession. To index this literature required 182 pages in the 20-Year Index, 5-Year Index Supplement, and the two latest *Proceedings* volumes. Much of the information is still of current value and, in many cases, reprints of JOURNALS are available back to the original issue.

Historically speaking, the present ACI JOURNAL is its second, since in 1913-15 an earlier JOURNAL was published in three volumes totaling 18 issues spanning from November 1913 (V. 1, No. 1) to August 1915 (V. 3, No. 8). Due to financial difficulties, JOURNAL publication was suspended at that time. It was resumed in 1929 under the editorship of Harvey Whipple who continued in that capacity until his retirement in 1952.

Board action to increase the frequency of publication reflects its policy of providing maximum service to members consistent with the Institute's financial means. Further, it will permit a reduction in time between acceptance of manuscripts for publication and their appearance in the JOURNAL thus making more timely the contents of each issue.

Recommended Standards for Bibliographies of the American Concrete Institute*

The American Concrete Institute has established a publication series of "Bibliographies." Bibliographies to be included in this series will be prepared by ACI technical committees when warranted. When the bibliographies are released for publication by the Technical Activities Committee, they will be assigned serial numbers for easy identification. These recommendations are to assist in the preparation of these bibliographies and to insure their uniformity in style and arrangement.

Briefly, the contents of the bibliographies *shall be selective,* arranged chronologically, and annotated. Each bibliography will consist of a cover, a title page, foreword, bibliography, and index. When appropriate, a review may be included following the foreword.

TITLE PAGE

The title page shall contain the title, name of committee preparing bibliography, committee membership, date of publication, copyright, price, and name and address of the Institute.

FOREWORD

The foreword should be brief, but should include such of the following as may be appropriate:

1. Purpose of bibliography
2. Scope of the bibliography
3. Range of time covered
4. Need for bibliography
5. Justification of the selection of items
6. Use of annotations
7. Description of index
8. List of major sources searched

The need for the bibliography may be stated in terms of importance of the subject, lack of other bibliographies in the field, and the manner in which it supplements bibliographies in related fields.

Justification and standards for the selection of the individual references should be given. A statement similar to the following is suggested:

> **The references listed in this bibliography have been selected by the committee as most representative of the historical background of this subject and best reflecting desirable current practices without undue repetition of data appearing in more than one source.**

If annotations are not included for all references, the reasons should be stated to avoid the impression of superficial treatment.

*Adopted by the Technical Activities Committee Apr. 30, 1956.

REVIEW

Although good reviews may be included in references, a short review, not over 2000 words, prepared by the technical committee might well be desirable. Such a review might consider the contents of the literature represented by the references, summarize the present state of knowledge, mention conflicting results and opinions, and indicate areas where new knowledge is most urgently needed.

BIBLIOGRAPHY

Arrangement of references

The bibliography shall be arranged chronologically by date of publication; this will make it convenient to prepare supplements as needed. For each year, the references shall be arranged alphabetically by author or by title when no author is given. The references shall be numbered consecutively for ease in indexing.

Selection of references

The bibliography should include those works which contain original information and contribute to the development of the subject. To accomplish this, all works in all languages pertinent to the scope of the bibliography should be reviewed. In some cases, it may be desirable to include well prepared reviews. Appropriate selection of references will save considerable time for the user and still furnish the information desired.

Annotation

To further conserve the user's time and increase the value of the bibliography, the references will be annotated. This should be done in the fewest possible words, preferably 30 to 60, and not over 100, except in rare cases. Annotations should utilize such of the following suggestions as may be appropriate:

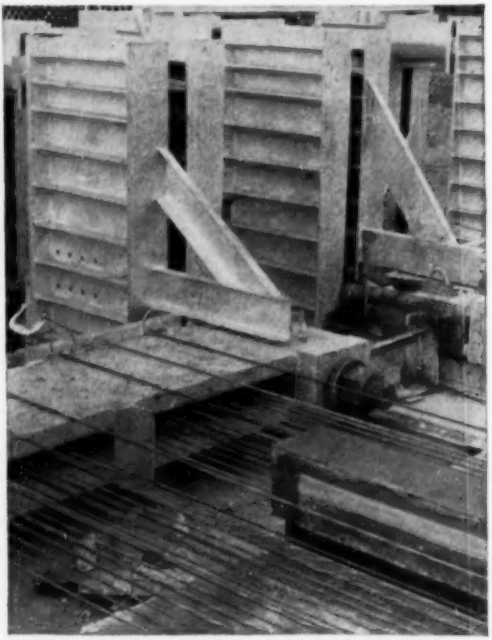
1. Avoid repetition of information already explicit in the title of the reference.
2. Confine coverage of a reference to those topics significant for the purpose of the bibliography.
3. Indicate purpose of study, types of tests and specimens.
4. State major conclusions.
5. State the number of references included when the number is significant, as might be the case in reviews.
6. Compare the reference in question to others of similar or contrasting purpose, especially when there is a conflicting opinion.
7. If foreign, indicate when an English summary is included.
8. Avoid personal opinions, but supply objective facts on which the user may base his own opinion.

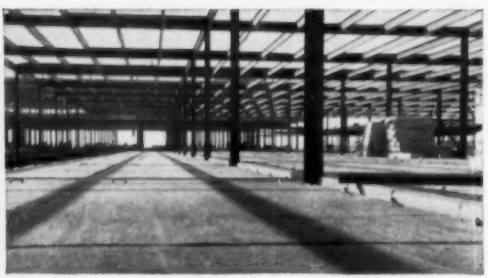
The annotation will be in paragraph form placed immediately after the item to which it refers. In general, the information should be written in sentences that are clear, complete, and readable. Abbreviations approved for ACI technical papers should be used.

Continued on p. 9

3 WAYS TO BUILD WITH

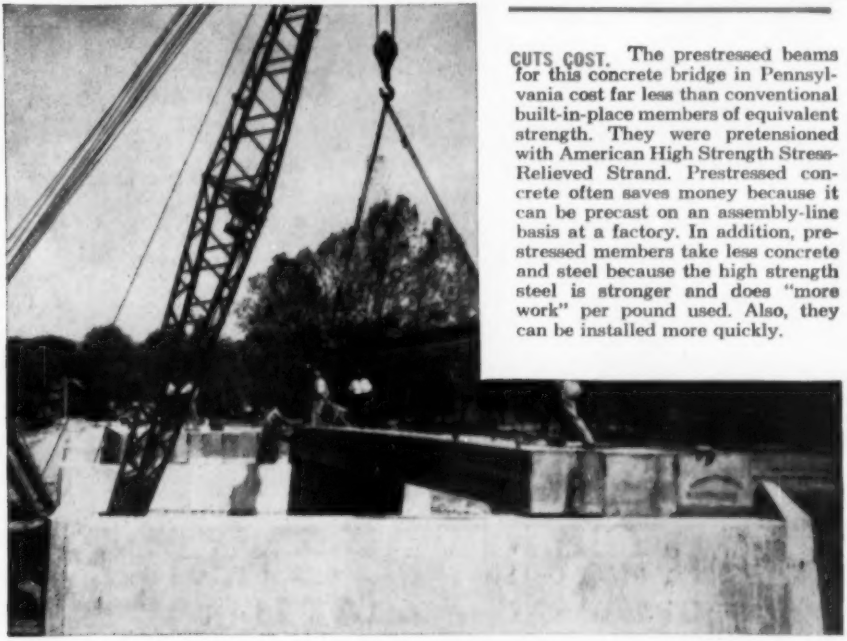
FIRST OF ITS KIND. This Lincoln Tunnel Retaining Wall was designed and built by the Port of New York Authority. A maximum of 50 feet high, the wall consists of concrete piers poured in place with slots in the sides. Precast, prestressed panels are dropped into these slots to form the wall. This is the first use of this type of construction in the United States. The panels are 4 feet wide and either 12 inches or 18 inches thick. They are pretensioned to 175,000 psi with 32 or 46 3/8" diameter American Special High Strength Stress-Relieved Strands. Panels were manufactured by Precrete, Inc., Astoria, Long Island.





TWO MODERN IDEAS AND ONE OLD. American Welded Wire Fabric has been used for more than 30 years to reinforce all types of concrete construction. American High Strength Stress-Relieved Strand for prestressed concrete, a high-quality product developed expressly for this application, is now also being used extensively. A typical installation is this large shopping center at Roosevelt Field in New York where precast welded wire fabric reinforced channel slabs combine with precast *prestressed* slabs to make a better building. The reinforced slabs, 16 feet long, use American Welded Wire Fabric, 3" x 8"—3 gage x 8 gage. The prestressed slabs, in lengths of 27', 31'-6", and 33'-6", are pretensioned with American High Strength Stress-Relieved Strand. This is a Webb & Knapp project, designed by Boehler and Bugnoni. Structural Engineers were Severud—Elstad—Krueger of New York City. Slabs were manufactured by Precrete, Inc., Astoria, L. I.

PRESTRESSED CONCRETE



CUTS COST. The prestressed beams for this concrete bridge in Pennsylvania cost far less than conventional built-in-place members of equivalent strength. They were pretensioned with American High Strength Stress-Relieved Strand. Prestressed concrete often saves money because it can be precast on an assembly-line basis at a factory. In addition, prestressed members take less concrete and steel because the high strength steel is stronger and does "more work" per pound used. Also, they can be installed more quickly.

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COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

FACTS! about making concrete stronger!

American Steel & Wire
Dept. 76-T, Rockefeller Bldg.
Cleveland 13, Ohio

Please send me complete technical data on the following products:

☐ *American Super-Tens Stress-Relieved Wire and American High Strength Strand for Prestressed Concrete*

☐ *American Welded Wire Fabric Reinforcement*

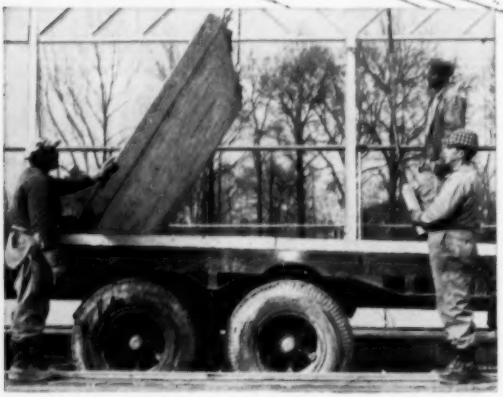
Name .....

Firm .....

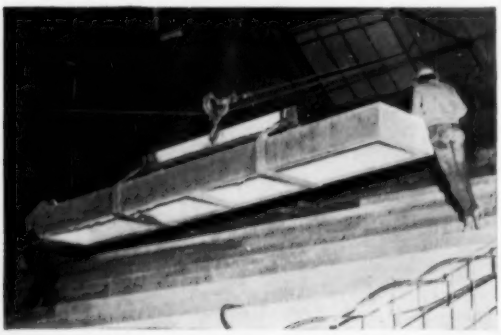
City ..... State .....

USS AMERICAN *Super-Tens* Stress-Relieved WIRE
and
AMERICAN HIGH STRENGTH STRESS-RELIEVED STRAND
UNITED STATES STEEL

Architect: A. G. ODELL & ASSOCIATES, Charlotte, N. C.
Consulting Engineers: SEVERUD-ELSTAD-KRUEGER, New York City
General Contractor: THOMPSON & STREET CO., Charlotte, N. C.
Contractor for Precast Panels and Seat Beams: CONCRETE MATERIALS, INC., Charlotte, N. C.
Ready Mix Concrete supplied by: CONCRETE MATERIALS, INC., Charlotte, N. C.



One of 600 precast concrete wall panels made with Lehigh Early Strength Cement. Averaging 7½′ x 20′ in size, the panels form 60,000 square feet of the exterior walls in these structures.



Placing one of 1000 precast concrete seat beams in coliseum. These beams, each weighing 4000 lbs. were also made with Lehigh Early Strength Cement. Seating capacity of coliseum is 10,000.

trend toward **tomorrow...**

The David Ovens Auditorium and the Charlotte Coliseum, Charlotte, N. C. illustrate the trend toward concrete for tomorrow's construction. By combining precast and cast-in-place concrete the designers and contractors have provided structures that are durable, functional and pleasing to the eye.

Lehigh Cements were used throughout. In the manufacture of the 600 precast exterior wall panels and 1000 precast seat beams, Lehigh Early Strength Cement was used to cut labor, curing and overhead costs by 50%. Dependable Lehigh Portland Cement was used in the ready mix concrete for all cast-in-place concrete. Lehigh Mortar Cement was used to lay up all masonry units.

Whether you build big or small, traditional or modern, there are Lehigh Cements to meet your requirements. And remember, somewhere on nearly every job, Lehigh Early Strength Cement will save you time and money.

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Arrangements of elements in the reference

Each reference shall, in addition to name(s) of the author(s) (when available) and title, include sufficient information to enable it to be readily located. The elements of the reference shall be in the following sequence:

1. *For references in periodicals*

   Author or authors; title; subtitle, if any; periodical title; (city of publication if foreign); volume; issue number; date of publication; inclusive page numbers.

2. *For references to or in books, pamphlets or other separate publications*

   Author or authors; title; subtitle, if any; publication or publisher; city of publication; volume, number or edition; date of publication; inclusive page numbers or total pages.

The names of authors shall be entered in the form and the order used on the title page of the publication, each name being inverted. For all foreign periodicals, the name of the city of publication should be included in parentheses after the periodical title. The date of publication should include month when known, and the day of the month when appropriate.

Abbreviations in the reference

The abbreviations V., No., and p. or pp. shall be used for volume, number, and page or pages. Months, other than May, June, and July, should be abbreviated.

Names of publications such as "Journal of the Institution of Civil Engineers," and "Proceedings of the American Concrete Institute," should be spelled out. The editors will apply standard abbreviations and styling. Such a procedure will assure uniformity between bibliographies prepared by the various committees.

Language

The titles shall be in English. If the original title is in a foreign language that can be composed directly or transliterated and composed on an ordinary typewriter, it should be placed in parentheses immediately following the English translation. The language, other than English, of the reference shall be stated in a parenthetical phrase at the end of the reference, such as "(in Japanese)."

The original name of a foreign periodical should be used in every case where it is possible to type it; but in the case of other languages such as Japanese, the name of the publication should be translated.

The proper accent marks should be included in all foreign words.

Examples

The following examples will serve to illustrate the above principles and the proper punctuation.

1907

1. Talbot, A. N., "Tests of Reinforced Concrete Beams," University of Illinois Engineering Experiment Station Bulletin No. 14, 1907, pp. 16-21.
Tests are of six reinforced concrete beams subjected to 24 to 30 repetitions of load. Specimens were identical in reinforcement, but three different concretes were utilized. Limited data are given on progressive deflection with increased repetitions of loads between 50 and 80 percent of final static ultimate.

1926

2. Graf, O., "Concerning the Elasticity of Building Materials" ("Über die Elastizität der Baustoffe"), *Die Bautechnik* (Berlin), V. 4, 1926, pp. 491-495, 516-518, 527-529. (in German).
Discusses static properties of mortar and concrete under few repetitions of load (three or four). Also included is a discussion of fatigue. This is same as in Graf's book on fatigue of materials.
3. Slater, W. A., Lord, A. R., and Zipprodt, R. R. "Shear Tests of Reinforced Concrete Beams," National Bureau of Standards Technical Paper T314, V. 20, 1926, p. 425.
Stresses in vertical and horizontal web bars of I-shaped beam with vertical stiffeners were measured for 40 applications of load producing shearing stress of 727 psi. Little effect of repetitions is noted on behavior in repeated-load test or in final static test to failure.

1952

4. Billington, D. P., "The Dynamic Testing of Self-Anchorage in a Prestressed Concrete Beam," *Précontrainte* (Brussels), V. 2, No. 2, July-Dec. 1952, pp. 84-93.
Dynamic tests are reported which utilized 11.8 m prestressed concrete beams with ungrouted prestressed wires. Looped self-anchorage for wires at one end and standard sandwich plate anchorage at the other end were used. Self-anchorage was found to be feasible for field use. The relation of static and dynamic stresses and deflections were studied.
5. "Effect of Speed of Testing on Flexural Fatigue Strength of Plain Concrete," Highway Research Board Proceedings, V. 32, 1952, pp. 251-258.
The investigation is a study of fatigue strengths of medium and high strength concretes under repeated loads applied at 70, 230, and 440 cpm. The results indicate that loading frequency, within the range investigated, has little or no effect on fatigue strength.
6. Inomata, Shunji, "On a Fatigue Test of Prestressed Concrete Beams," *Journal of the Japan Society of Civil Engineers* (Tokyo), V. 37, No. 10, Oct. 1952, pp. 443-449. (in Japanese).
For author's summary see *Proceedings of the American Concrete Institute*, V. 49, 1953, p. 466.
From tests of 24 beams with pre-tensioned wires, relations were developed between fiber stress and (1) crack formation, (2) fatigue factor of safety, (3) ratio of ultimate fatigue to ultimate static load, (4) bond strength and resistance to slipping under dynamic load.

After editing, the previous examples, except for the annotations, will appear as follows:

1907

1. Talbot, A. N., "Tests of Reinforced Concrete Beams," *Bulletin* No. 14, University of Illinois Engineering Experiment Station, pp. 16-21.

1926

2. Graf, O., "Concerning the Elasticity of Building Materials" (Über die Elastizität der Baustoffe), *Die Bautechnik* (Berlin), V. 4, pp. 491-495, 516-518, 527-529. (in German).
3. Slater, W. A., Lord, A. R., and Zipprodt, R. R., "Shear Tests of Reinforced Concrete Beams," *Technical Paper* T314, National Bureau of Standards, V. 20, p. 425.

1952

4. Billington, D. P., "The Dynamic Testing of Self-Anchorage in a Prestressed Concrete Beam," *Précontrainte* (Brussels), V. 2, No. 2, July-Dec., pp 84-93.
5. "Effect of Speed of Testing on Flexural Fatigue Strength of Plain Concrete," *Proceedings*, Highway Research Board, V. 32, pp. 251-258.
6. Inomata, Shunji, "On a Fatigue Test of Prestressed Concrete Beams," *Journal of the Japan Society of Civil Engineers* (Tokyo), V. 37, No. 10, Oct., pp. 443-449. (in Japanese).

INDEX

A suitable subject index is a necessary part of the bibliography and can be done best by the committee preparing the bibliography. The references will be listed by number after each subject heading. A bibliography with a proper index is much more valuable to the user than one without.

The following is a sample subject index of the illustrative references previously included.

Anchorage—4
Bond—6
Deflection—1, 4
Factor of safety—6
Flexure—1, 3, 4, 5, 6
Mortar—2
Plain concrete—5
Prestressed concrete—4, 6
Reinforced concrete, ordinary—1, 3
Speed of testing, effect of—5

When a supplement to a bibliography is issued a complete revised index will accompany it.

ASTM meeting devotes full session to concrete

The 59th annual meeting of the American Society for Testing Materials, Atlantic City, June 17-22, featured 32 technical sessions and numerous technical committee meetings, covering a wide variety of subjects relating to research and testing of engineering materials.

One session, devoted to concrete, included reports on (1) effect of revibration on concrete properties, by D. H. Sawyer and S. F. Lee, Department of Highways of Kentucky; (2) statistical study of flexural strength of concrete beams, by William C. Otto, U. S. Navy Bureau of Yards and Docks; (3) comparison of durability of six concretes as measured by four ASTM freezing-and-thawing methods, by H. T. Arni, B. E. Foster, and R. A. Clevenger, National Bureau of Standards; (4) correlation of sonic properties of concrete with creep and relaxation, by Tien S. Chang and Clyde E. Kesler, University of Illinois; (5) use of fly ash in concrete, by A. G. Timms and William E. Grieb, Bureau of Public Roads; and (6) studies relating to the testing of fly ash, by R. H. Brink and W. J. Halstead, Bureau of Public Roads.

New Technique Uses Stud Welding and Coil Ties to Secure Concrete Forms

By J. E. SMITH*

A new technique for securing concrete forms, involving a combination of end welded studs and coil form ties (Fig. 1), was employed by Webb & Knapp Construction Corp. during construction of the basement walls for the new Court House Square building in Denver. It proved to be a simple, economical, and safe fastening method.

The first step in the procedure was to end weld large diameter Nelson studs

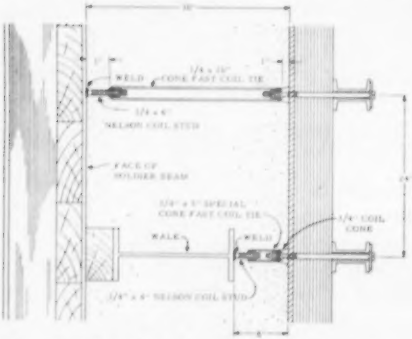

Fig. 1—Section through wall form secured by combination of end welded studs and coil forms

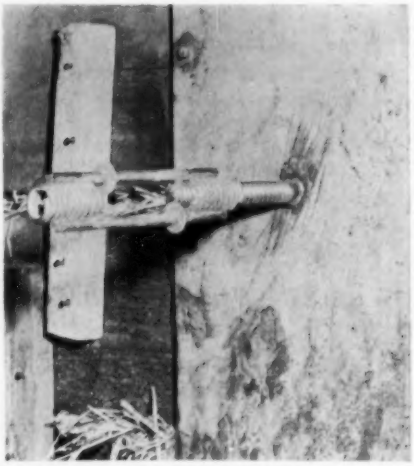

Fig. 2—Coil form tie screwed on to end welded stud. In some cases, outside forms were put in place directly over the steel piling before the ties were run down on the studs. Studs were welded after breast boards, backed up with straw, had been inserted behind the flanges of the vertical soldier beams

*Assistant Project Manager, Webb & Knapp Construction Corp.

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to the vertical soldier beams of the basement cofferdam walls with a Nelson heavy-duty NS-9 stud welding gun. Two battery units hooked up in parallel were used as the power source. The studs were ¾ in. in diameter and 6 in. long, with 5½ in. of broad threads sized to fit the coils of the Superior Concrete Accessories form ties (Fig. 2).

Fig. 3—After outside and inside forms were in place, bolt heads in the center of the large washers on the walers were threaded into the free ends of coil form ties, with the other ends being run down on threaded studs that were end welded to the vertical steel piling. Walers were 6-in. double channels, back to back

On the extreme upper lift, where a double form was required, the form was built in place with the sheathing boards fitted over the studs. Coil form ties were then threaded to the studs and the prefabricated inside form was erected. On the lower three lifts, concrete was placed directly against the cofferdam wall, eliminating the outside form. Prefabricated panels consisted of 4 x 10-ft, ¾-in. Plyform, with 2 x 6-in. studs 12 in. on centers. Walers consisted of 6-in. double channel iron, back to back. Forms were secured by running ¾-in. lag bolts through the waler and threading into the free end of the coil form tie (Fig. 3).

Welded studs were spaced 6 ft center to center on the horizontal plan and 2 ft on centers vertically. Theoretical load on each stud and tie was 12,000 lbs.

Two new research buildings for PCA

G. Donald Kennedy, president, Portland Cement Assn., has announced that the association will construct two new laboratory buildings at its Research and Development Laboratories in Skokie, Ill. Estimated to cost $1.8 million with their equipment, the buildings will provide for the association's expanded research program on concrete structures and the fire resistance of concrete.

The buildings are being designed by Dunlap and Esgar, Inc., Chicago, in cooperation with the PCA staff. Completion is scheduled for 1957.

The structural development laboratory will be 56 x 176 ft in plan, and the fire research center 56 x 220 ft, with a two-story 24 x 132-ft wing on one side. The main portion of each building will be a single large room 40 ft high. Offices will be in an end bay of the structural development laboratory and in the wing of the fire research center.

Identical precast structural members will be used for the main portions of both buildings. Frames will be of conventional reinforced concrete, but the beams will utilize high-strength steel reinforcing bars. The beams were designed by the ultimate strength method using 60,000 psi for ultimate steel stress. Wall panels will be of tilt-up construction with decorative designs cast in the concrete. Roofs will be of precast concrete units.

Dr. A. Allan Bates, vice-president for research and development, stated that the buildings have been made necessary by significant advances in concrete technology and structural design. American engineers are making great strides in use of types of concrete construction relatively new to this country, Dr. Bates pointed out. The new laboratories will supply through the association's field

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engineering organization to designers and builders the research and development information necessary to continued progress.

The fire research center will be organized under the Research Department, of which Hubert Woods is director. The structural development laboratory will be under the Development Department, Douglas McHenry, director.

Dr. Bates described the structural development laboratory as in effect "one giant testing machine." Conventional testing machines will not be used in the building. Instead, testing equipment will be constructed as required from large elements of structural steel shapes and hydraulic jacks. Holes on 3-ft centers through the reinforced concrete floor will allow testing equipment to be bolted down.

The required strength and rigidity of the testing floor will be developed through box girder action in the longitudinal direction and truss action in the transverse direction.

The fire research center will ultimately contain six furnaces large enough to handle tests on full-scale beams, columns, walls, and floor slabs. The laboratories will be the largest of their kind devoted to research on concrete. In addition they will be used for research aimed at improving the fire resistance of concrete and concrete building elements.

Both buildings will have overhead cranes that will travel the full length of the main testing areas. An unusual feature of the fire research center will be a large movable partition separating the air-conditioned casting and storage area from the furnace room. It will be so constructed that it can be opened to allow passage of the crane when specimens are to be moved from the storage area to the furnaces.

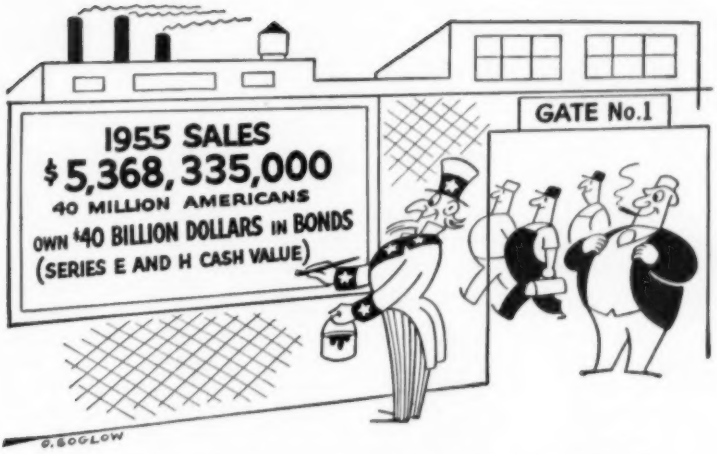
Initial emphasis in the fire research center will be placed on determining the fire resistance of prestressed concrete, since more information on it is needed for current applications. Other factors to be included in early studies are strength and type of concrete, method of curing, thickness and shape of section, type and amount of reinforcement, bonding of prestressed reinforcement, thickness of cover, and surface preparation.

In the new structural development laboratory, one of the first projects that will be undertaken is a study of various types of connections used with precast structural members. Another high-priority project will probably be extensive study of full-scale concrete floor slabs.

Neale new president of NFPA

John A. Neale, chief engineer, National Board of Fire Underwriters, has been elected president of the National Fire Protection Assn.

The National Fire Protection Assn. is a nonprofit technical and educational organization devoted to the reduction of loss of life and property by fire, with headquarters in Boston, Mass. Its work, through technical committees, is directed toward the preparation and publication of standards, together with popular educational material, covering the many phases of fire prevention and protection, for distribution to its members and the general public. Engineers of the National Board are active in the work of these committees. Mr. Neale, who has been a member of the NFPA's board of directors for a number of years, served on many of them.



SAVINGS BOND BUSINESS IS GOOD

and Good for Business

Cash sales of Series E and Series H Bonds in 1955 hit a ten year peak: $5,368,335,000; 10% over 1954, and 23% higher than 1953.

Sales of E and H Bonds exceeded total redemptions of both series (maturities and cashings) by $716,834,000; up 61% over 1954.

Sales of Series H Bonds—the current income bond sold only to individuals—exceeded $1 billion for the first time in any year since their introduction in mid-1952.

As of December 31, 1955, the cash value of E and H Bonds held by 40,000,000 individuals totaled more than $40 billion—the highest amount on record.

Between May, 1951, and December, 1955, Series E Bonds with a face value of $19.9 billion, had reached maturity. Of these, bondholders still held approximately 70%—$13.9 billion—under the optional automatic extension terms.

If less than 50% of your employees are enrolled in the plan . . . or if you do not have the Plan . . . phone, wire or write to Savings Bond Division, U. S. Treasury Department, Washington 25. You'll be surprised to learn how easily you can install a Payroll Savings Plan or increase participation in an existing plan to 60%, 70% or higher.

Adjusting Stress Distribution Pattern in Pre-Tensioned Elements

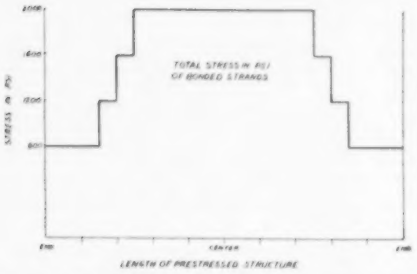


Fig. 1—Intensity of compressive stress due to prestressing strands. Distribution pattern achieved by preventing bond between some strand sections and concrete

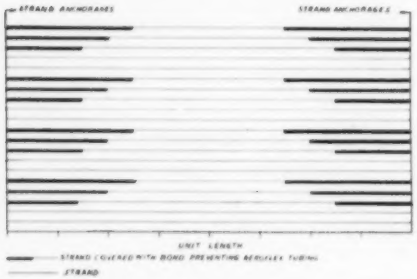


Fig. 2—One arrangement of plastic tubing to give a specified stress distribution pattern

Fig. 3—Desired stress distribution pattern in beam is obtained by partial covering of several strand sections

In pre-tensioned prestressed concrete bridge and roof members, where a number of parallel strands run through the structure and are anchored at both ends, it is imperative to prevent excessive stress in that part of the bridge or roof close to the structure's anchorage and support points. At the same time, maximum stress is required in the center of the structure to assure maximum preloading.

Ideally, this would be accomplished by having more strands in the center of the structure than at either end. Since this is practically impossible, it is necessary to run the maximum number of strands required in the center through the whole structure and prevent bond between a certain percentage of strands and the concrete near both ends of the bridge or roof. Anchor Plastics Co., Inc., has developed a plastic tubing (Aeroflex) for such use. The pattern of stress distribution over the length of a member using plastic tubing to prevent bond on some strand sections is shown in Fig. 1. The pattern of application for tubing is shown in Fig. 2.

The plastic tubing is an open tube with an overlap of about one-half a circumference. The tubing is speedily applied over the strands by opening it and walking along the strand while pushing the opened tube against the wire (Fig. 3). The flexibility of the plastic makes the tube self-closing around the strand. The overlap, installed with the outside end pointing down, prevents the ingress of concrete and water. No taping or tying is required to hold the tubing in place. This system is currently being installed in the Rafael-San Mateo Bridge by the Kiewit organization as well as in a warehouse roof (Fig. 3) constructed by the Formigli Corp.; ⅜-in. diameter Roebling strand is being used for both jobs.

AGC's midyear outlook for construction

The year 1956 still may be a $60 billion construction year, reported James D. Marshall, executive director, Associated General Contractors of America, at the Midyear Business Forecast Symposium, Washington, D.C., June 15. The symposium was sponsored by the Chamber of Commerce of the United States and 14 trade associations.

The AGC forecast stated that there was a potential for new construction volume of about $44.5 billion. When an estimated volume of more than $15 billion in maintenance and repair work is added, the total is close to $60 billion. The prospect, said Mr. Marshall, is that total construction volume will increase perhaps 4 percent over 1955.

Nonresidential construction expanding

From construction figures for the first 5 months of 1956 it appears probable, said the report, that ascending nonresidential activity will hit $29 billion, a 10 percent increase over the new volume total for these categories in 1955, and more than offsetting the decline in residential work which currently is about 7 percent behind the 1955 pace.

It is expected that private nonresidential building construction, paced by surges in commercial and industrial activity, will total $9.4 billion this year, an increase of 24 percent over 1955. Industrial construction, now proceeding at a rate 25 percent ahead of last year, should pass the $3 billion mark. Commercial construction, at a current rate of 23 percent ahead of 1955, may step up its increase during the summer months, and reach a possible $3.8 billion.

Private public utility construction, which totaled $4.6 billion in 1955 according to the latest revised statistics of the government, is showing an unexpected increase, and should reach $4.7 billion this year.

Slight increases are in sight for church, social, recreational, and miscellaneous construction, while the other minor categories of private educational and institutional activity are experiencing slight declines.

Farm construction, which was $1.6 billion for 1955 on the basis of new estimates, is expected to decline only slightly to about $1.5 billion.

Public construction

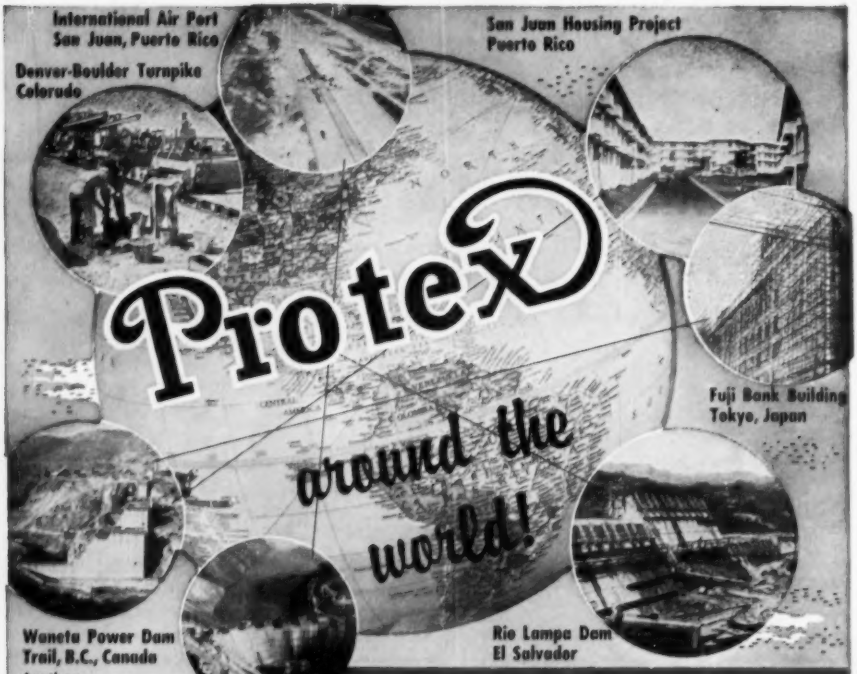
AGC believes all new public construction in 1956 may reach $13.3 billion, a 7 percent increase over last year's $12.4 billion, despite a drastic reduction in the federal government's atomic energy program, a smaller than expected increase in military construction, and a small volume of conservation and resource development work. State and local public works of all kinds are on the increase.

Highway construction, which reached a total of $4.5 billion in 1955, should exceed $5 billion by a comfortable margin this year, and accelerate thereafter under the impetus of the new long-range, 13-year program which is in the offing. Highway and street construction now is proceeding at a 13 percent increase over the 1955 rate.

Sewer and water facilities, which exceeded $1 billion for the first time last year, may see a 15 percent increase in 1956.

School construction also is increasing, but at a slower rate than anticipated. The outlook in this category is for about $2.6 billion.

Federal industrial work is nearly 60 percent behind 1955—twice the expected decline—with the prospect that less than $500 million of work will be done this year. Military construction is proceeding at a rate which will bring the total to near $1.5 billion, and con-



Waneta Power Dam
Trail, B.C., Canada

Another half-million tons of Protex concrete, where climatic changes are severe and placement difficult. Protex was specified specifically for this 250' high project.

Hungry Horse Dam, Montana

Over 3 million cu. yds. of Protex concrete, selected for its consistent controlled air quality and proven economy, with no yield loss in placed concrete. Comparative tests of the project proved that, regardless of claims or names, none were as effective as PROTEX.

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Where You Find Construction, You Find PROTEX* Air Entraining Solution. And Here's Why!

Scientifically formulated and processed from controlled raw materials under exacting Laboratory control to do a positive job of controlling the entrained air in a concrete mix at a minimum cost. Our leading Industrial Organization's Research and Control facilities is producing a superior Air Entraining Agent *for all types of concrete*. That's the reason for the *big swing* to PROTEX in the millions of yards of placed concrete Around the World.

This monumental tribute in concrete stands like a beacon of positive proof that PROTEX quality and reliability—coupled with honest dealings and fair prices is what the user wants. Let your PROTEX Representative give you all the facts, and experience your savings with Superior PROTEX.

Protex membrane curing compound excels latest Government specifications U.S.E.D.—C.R.D.—300-52. Reliability—quality—reasonable price are its chief advantages.

servation and development is behind last year's rate which saw $600 million in such work as dams, levees, flood control, and irrigation.

Highway program

The long-range highway construction program which has passed both houses of Congress in varying forms provides for nearly $51 billion in federal and state funds combined to enlarge and improve the highway system. While the funds will be spread over a 13- to 15-year period, the size of the program makes it the largest peacetime public works undertaking ever authorized.

The report noted that the $51 billion federal-aid program is over and above the independent expenditures of the states, counties, and municipalities for road and street construction. This amounts to roughly two-thirds the $5 billion total level of annual expenditures for highways at the present time. Assuming that these expenditures will increase gradually in the future, total highway construction volume over the 13-year period could be in excess of $100 billion, representing an increase of approximately 60 percent over the current rate.

At the present time, highway construction is starting to accelerate under the increased federal-aid program authorized in 1954. In the first quarter of 1956 the state highway departments and toll facility agencies authorized contracts for $707 million, an increase of 39 percent over the same period of 1955. Studies indicate that total highway construction will reach a level of between $8 and $9 billion a year by 1960.

While general contractors will have some headaches with a tight steel and cement supply, partly caused by distribution difficulties, producers have scheduled large expansion programs that will gradually increase the supplies during the next several years.

RILEM symposium on winter concreting

During the week of Feb. 12-18, 1956, a symposium on winter concreting was held in Copenhagen. The congress was arranged by RILEM (Réunion Internationale des Laboratoires d'Essais et de Recherches sur les Matériaux et les Constructions). Preprints of 32 original contributions from specialists in 12 different countries were sent to symposium members beforehand. In attendance were 270 concrete technologists from different countries, and about 70 members took part in the discussions. The surprisingly large attendance clearly illustrated the international character of the problems summarized below.

Regarding winter concreting three factors of importance in connection with climatic conditions were emphasized: (1) prediction of external environmental conditions, (2) prediction of conditions throughout the concrete resulting from a given set of environmental conditions, and (3) reproduction of the climatic conditions in the laboratory.

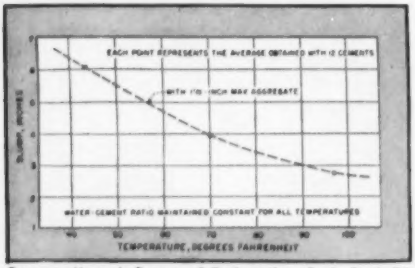
Prof. Inge Lyse, Trondheim, Norway, and Prof. Georg Wastlund, Stockholm, Sweden, surveyed existing results of experiments on the influence of temperature on the development of strength and frost resistance of concrete, which generally make it possible to manage common winter concreting with sufficient accuracy. T. C. Powers, Chicago, surveyed PCA's latest results of basic research concerning the durability of concrete. Air entrainment is of great use, not only for hardened concrete exposed to frost, but also for the main subject of the symposium, the green concrete. However, the hitherto known and more popular explanations of the action of air entrainment were considered to be less satisfactory.

A. Voellmy, Zurich, Switzerland, reviewed methods to secure an adequate quality by winter concreting. B. Kelopuu, Helsinki, Finland, presented material and job site methods for winter concreting.

Why Should HOT WEATHER CONCRETE Concern You?

. . . because HOT WEATHER CONCRETE sets more quickly, has lower ultimate strength, cracks more, and requires more mixing water than concrete made at cooler temperatures. In addition to structural deficiencies, HOT WEATHER poses problems with placing, compacting, and finishing.

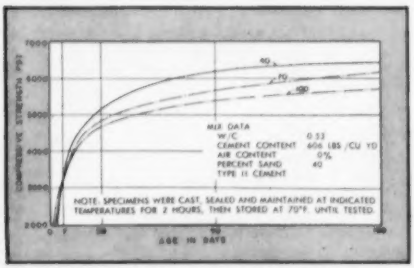
LOSS IN SLUMP


EACH POINT REPRESENTS THE AVERAGE OBTAINED WITH 12 CEMENTS
WITH 1½" HIGH MAX AGGREGATE
WATER-CEMENT RATIO MAINTAINED CONSTANT FOR ALL TEMPERATURES
SLUMP, INCHES
TEMPERATURE, DEGREES FAHRENHEIT

Concrete Manual, Bureau of Reclamation, P. 6, Sixth Ed.

This graph illustrates the loss in slump due to hot weather. Notice the 4" loss between 40°F and 100°F. Normally this loss in slump is overcome by adding more water to the mix. The result – more cracking and lower ultimate strength.

LOSS IN STRENGTH


MIX DATA
W/C 0.53
CEMENT CONTENT 606 LBS /CU YD
AIR CONTENT 0%
PERCENT SAND 40
TYPE II CEMENT
NOTE: SPECIMENS WERE CAST, SEALED AND MAINTAINED AT INDICATED TEMPERATURES FOR 2 HOURS, THEN STORED AT 70°F. UNTIL TESTED.
AGE IN DAYS

Concrete Manual, Bureau of Reclamation, P. 21, Sixth Ed.

Even when no extra water is added to concrete in hot weather, strength will go down. Notice the 800 psi loss in strength at ninety days between concrete at 40°F and 100°F.

WHY TEMPERATURE AFFECTS CONCRETE – A cement gel forms around each grain of cement in the initial stage of mixing. The gel is large in hot weather and relatively small in cold weather. A large gel requires more water. Thus, the gel size governs the water requirement and ultimate quality. Gel size can be controlled . . . physically, by cooling the mix with ice . . . chemically, by controlling the mix with an exclusive gel-reducing agent . . . PLASTIMENT.

RETARDED SET—When the cement gel is reduced in size chemically, the setting time will be retarded in proportion to the quantity of Plastiment which is added. Thus a simple specification based on temperature and varying quantities of Plastiment will provide for uniform setting time and water requirement at all job temperatures. This chemical control will result in the high ultimate strength and reduced cracking that is obtained with cooled concrete.

BLEEDING ACTION—With the chemically controlled cement gel there is a unique type of bleeding action. Field men will notice a rapid release of clean, clear mixing water without scum or laitance after the concrete has been placed. In a wet mix this effect is very noticeable and serves as a "safety valve" by releasing the excess water and thus lowering the water cement ratio of the concrete in place.

PLASTIMENT ACTION – Plastiment's action is uniform and predictable. It may be added as a powder or liquid to an established mix or included in the original mix design. It does not entrain air and so may be added in variable quantities to suit the job conditions. Plastiment works only on the cement gel and therefore may be used in any type of plain or air entrained concrete.

CONCLUSION

Hot weather concrete can be controlled chemically to give uniform high quality and normal setting time through the use of varying proportions of Plastiment. Write today for Sika's *all-temperature concrete specification.*

PLASTIMENT®
CONCRETE DENSIFIER
SIKA Chemical Corporation, Passaic, N. J.

DISTRICT OFFICES: Boston • Chicago • Dallas • Philadelphia Pittsburgh • Salt Lake City • Washington, D. C. • Montreal, Vancouver, Canada • Panama City, Panama • Dealers in Principal Cities

Positions and Projects

PCA staff changes

The Portland Cement Assn. has announced organization changes in the general headquarters staff of its Promotion Division, headed by Vice-President James D. Piper.

The changes, effective June 1, were made to broaden responsibility for the organization's expanded promotion program. The former position of director of promotion has been divided by the creation of the positions of director of promotion planning and engineering services, and director of educational services.

Leo H. Corning has the new title of director of promotion planning and engineering services, in which position he will be able to devote full time to the requirements of technical promotion.

Mr. Corning, a graduate of Case Institute of Technology, Cleveland, joined the staff of the association's Structural Bureau in 1929, was appointed assistant manager of that bureau in 1935, and manager in 1949. He received his appointment as director of promotion in 1952—the post he held until the present division of duties brought about by an expansion in services.

Charles W. Reene, formerly advertising and promotion manager, Hough Manufacturing Corp., Janesville, Wis., was named director of educational services. He will supervise the association's activities in the fields of advertising, public relations, publications, and educational films. Mr. Reene was graduated from the University of Illinois with BS and MS degrees in advertising and communications and later was a graduate assistant in advertising and promotion at the university.

George H. Paris, formerly assistant director of promotion, has been appointed assistant to the vice-president for promotion. After graduating from the University of Illinois with a BS degree in civil engineering, Mr. Paris served as design engineer in the bridge department of the Burlington Railroad and as an associate editor on railroad publications for the Simmons-Boardman Publishing Corp. He joined PCA in 1946 as railway representative for the Structural and Railways Bureau, and held that position until 1953 when appointed assistant director of promotion.

Bodwell joins construction firm

Russel S. Bodwell, formerly associated with Porter, Urquhart, McCreary & O'Brien, Newark, N. J., has been appointed assistant chief engineer of the Union Building & Construction Corp., Passaic, N. J. Mr. Bodwell was with Porter for 9 years as project manager on the New Jersey and Connecticut turnpikes. He was soils and paving engineer on other turnpike projects, as well as several assignments with the Corps of Engineers.

Prescon Corporation formed

Prescon Corp., to manufacture and distribute headed, cold-formed steel-wire units for stressing concrete, was created through the merger of Prescon, Inc., Paramount, Calif., and Prescon of Texas, Corpus Christi.

Guy Braselton, who headed Prescon of Texas, will serve as president; Loris L. Gerber is vice-president; and Karl H. Middendorf, who developed the system for producing the headed steel-wire units, will serve as chairman of the board of directors. Lultcho Boduroff, an authority in the prestressed concrete field in Australia and Germany before moving to the United States last summer, is a board member.

Mr. Middendorf developed his headed-wire stressing unit following a construction and engineering career dating back to 1912, and after 3 years of designing and experimental engineering in prestressed concrete with the Preload Corp., New York.

Dr. C. P. Siess (left) receiving the 1956 Concrete Reinforcing Steel Institute Award in behalf of Dr. N. M. Newmark and himself from Prof. H. J. Gilkey, CRSI Award Committee chairman

Newmark and Siess receive CRSI 1956 Award

The 1956 Award of the Concrete Reinforcing Steel Institute was made in recognition of the joint activities of Dr. N. M. Newmark and Dr. C. P. Siess in the field of reinforced concrete research. Their work, in Talbot Laboratory at the University of Illinois, has ranged from extensive studies since 1936 of concrete floor slabs for bridges and buildings to recent research on the static and dynamic behavior of reinforced concrete beams and slabs.

The results of their research on highway bridge floors have had a significant effect on design practice, both in this country and as far away as Tasmania, Australia; Kenya, Africa; and the Fiji Islands.

Dr. Newmark previously received the ASCE J. James R. Croes Medal, 1945; ASCE Moisseiff Award, 1950; ACI Wason Medal for Most Meritorious Paper, 1949; and the President's Certificate of Merit in 1948. He is chairman of ACI-ASCE Committee 321, Design of Reinforced Concrete Slabs; and a member of Committee 318, Standard Building Code; and ACI-ASCE Committee 323, Prestressed Reinforced Concrete.

Dr. Siess was awarded the ACI Wason Medal for Most Meritorious Paper in 1949. He is chairman of ACI Committee 208, Bond Stress; and a member of Committee 215, Fatigue of Concrete; Committee 318, Standard Building Code; and ACI-ASCE Committee 323, Prestressed Reinforced Concrete.

The CRSI Award is administered by representatives of the American Concrete Institute, Associated General Contractors of America, and American Society of Civil Engineers. Members of the 1956 Award Committee were Prof. H. J. Gilkey, head, Department of Theoretical and Applied Mechanics, Iowa State College, Ames, chairman representing ASCE; Vernon P. Jensen, controllor, C. F. Braun & Co., Alhambra, Calif., representing ACI; and Earl J. Wheeler, president, Frank Messer & Sons, Inc., Cincinnati, representing AGC.

Prestressed concrete featured in new plant

A new 100,000 sq ft manufacturing plant, almost entirely of concrete, was recently opened in Oxford, Miss., by Chambers Manufacturing Corp., maker of cooking equipment. Beams, panels, and other parts of the building were prestressed and precast at the site. There is also a separate, air conditioned 3000 sq ft office building. This building, separated from the plant by a passageway and garden, employs the prestressed beams and same type of roof structure as the factory for its framing system.

California concrete conferences well attended

A series of single-evening conferences on practical concrete problems was held recently in five California cities, with gratifying attendance and interest. There were no prepared speeches, the program consisting entirely of questions from the floor and answers by a panel of engineers and construction specialists aided by others attending. The meetings were concluded by showing the ACI-PCA film, "How to Trans-

port, Place, Finish, and Cure Quality Concrete."

Members of the various panels were as follows:

Date	City	Panel members
Apr. 13	San Francisco Attendance 160	E. L. Howard, T. H. Ives, J. E. Jellick, J. W. Kelly, and K. E. Parker
Apr. 23	Sacramento Attendance 175	F. N. Hveem, I. O. Jahlstrom, J. E. Jellick, J. W. Kelly, Goerge Leavitt, and Bailey Tremper
Apr. 27	Fresno Attendance 60	A. H. Green, Bernard Greulich, E. L. Howard, J. E. Jellick, J. W. Kelly, and Harold H. Schlintz
Apr. 30	San Diego Attendance 175	Robert C. Dorland, A. K. Fogg, Philip W. Helsley, J. Frank Jorgenson, J. W. Kelly, and Robert E. Tobin
May 1	Pasadena Attendance 375	Frank Cressley, J. W. Kelly, Jack Short, Robert E. Tobin, Byron Weintz, and Paul Wright

The series was offered by Engineering Extension and the Institute of Transportation and Traffic Engineering, University of California, with the cooperation and support of the West Coast Committee of the American Concrete Institute, Portland Cement Assn., Portland Cement Information Bureau, and the concrete industry of the Pacific Coast. The meetings were arranged by Bob Glenn, engineer and extension representative of the Institute of Transportation and Traffic Engineering. Prof. J. W. Kelly served as moderator of all sessions.

LOOKING AHEAD

September 16-22, 1956—Second Pacific Area National Meeting and Apparatus Exhibit, American Society for Testing Materials, Hotel Statler, Los Angeles, Calif.

September 18-20, 1956—American Railway Bridge and Building Assn., Chicago, Ill.

October 15-19, 1956—Convention, American Society of Civil Engineers, Hotel William Penn, Pittsburgh, Pa.

October 22-24, 1956—Seventh National Conference on Standards and 38th Annual Meeting, American Standards Assn., Hotel Roosevelt, New York, N.Y.

October 22-26, 1956—44th National Safety Congress and Exposition, National Safety Council, Conrad Hilton, Congress, Morrison, and La Salle hotels, Chicago, Ill.

October 23-25, 1956—Ninth Regional Meeting, American Concrete Institute, Sheraton-Mt. Royal Hotel, Montreal, Canada

October 25-26, 1956—Fall Meeting, National Society of Professional Engineers, Greenbrier Hotel, White Sulphur Springs, W. Va.

Errata

The following corrections should be made in "Analysis and Testing of Translational Shells," by Mario G. Salvadori, in the June JOURNAL.

p. 1102—Eq. (15) should read: "$y = \pm l/2$" not $1/2$.

p. 1103—The second portion of Eq. (29) should read:

$$(\sin \alpha)\ T_\psi = N_x \sin \psi \cos \psi + T \sin (\alpha + 2\psi) + N_y \sin (\alpha + \psi) \cos (\alpha + \psi)$$

At the end of paragraph following Eq. (30) add "of a square shell."

Caption on Fig. 4 should read: "Internal stresses on element in ψ direction."

Recently completed Mahi Bridge in Baroda, India, consists of 16 spans of 110 ft, the prestressed concrete beams being 9 ft deep. Units were erected by precasting and carrying them out from the end of the bridge by means of a pair of structural steel erection girders 182 ft long, which cantilevered from the previously placed span to the next pier. The Lee-McCall prestressing system was used, each beam having fifteen 1⅛-in. diameter, high tensile steel bars.

The deck is cast-in-place reinforced concrete 9 in. thick.

Hindustan Construction Co., Bombay, was responsible for the construction. Donovan Lee, ACI member, consulting engineer of London, and M. V. Joglekar, chief engineer of the Hindustan Construction Co., were responsible for the prestressed concrete design and the design of the erection girders.

The bridge was designed for two lanes of Class A Indian highway loading, which is slightly higher, for 110-ft spans, than AASHO H20-S16.

Honor Roll

Jose L. Capacete continues to head the Honor Roll and now has 28 credits. Federico Barona de la O proposed 8 applicants for membership this month and has second place. W. H. Armstrong with 7 credits is now in third place and Jacob J. Creskoff is fourth with 6 credits.

ACI offers up-to-the-minute "know how" on problems encountered in the field of concrete, and ACI membership is, therefore, essential to professional advancement.

Jose L. Capacete	28
Federico Barona de la O	8
W. H. Armstrong	7
Jacob J. Creskoff	6
S. E. Acker	5
J. W. Kelly	5
James A. McCarthy	5
George F. Bishop, Jr.	4
George M. Brief	4
Arthur N. L. Chiu	4
Phil M. Ferguson	4
Harry C. Saxe	4
Howard Simpson	4
Ellis S. Vieser	4
Koker Al-Asady	3
Daniel M. Cashdan	3
M. A. Craven	3
L. M. Legatski	3
Ignacio Martin B.	3
Walter H. Price	3
K. E. Whitman	3
G. W. Bernard	2
W. S. Burke	2
T. J. Cavanagh	2
Miles N. Clair	2
Anthony J. Costanza	2
Claudio Creamer G.	2
Julius Dorfman	2
William J. Eney	2
Donald R. Frost	2
J. Guillermo Galvan	2
Gerald K. Gillan	2
Martin J. Gutzwiller	2
Samuel Hobbs	2
E. L. Howard, Jr.	2
H. N. Howe	2
M. W. Huggins	2

Henry L. Kennedy 2
John B. McConville 2
R. H. Mahimtura 2
George T. Mahoney 2
Elbert Drew Mayes 2
L. J. Meszaros 2
A. F. Moore 2
Chia Muklabhant 2
Henry L. Neve 2
Gene M. Nordby 2
Adrian Pauw 2
Abdur-Rahman S. Rasul 2
Melchor Rodriguez C. 2
C. H. Scholer 2
C. W. N. Sexton 2
Theodore Sheafer 2
Mandrup Skeie 2
Delbert Smith 2
L. J. Sullivan 2
Emin Veral 2
Thomas J. Whitten 2

ACI MONTREAL REGIONAL MEETING
Details in
August News Letter

Who's Who This Month

ACI Committee 325, Subcommittee III

ACI Committee 325, Subcommittee III, presents "Structural Design Considerations for Pavement Joints," p. 1. Subcommittee III members are: Chairman E. A. Finney, Michigan State Highway Department; Henry Aaron, Civil Aeronautics Administration; J. A. Bishop, U. S. Naval Civil Engineering Research and Evaluation Laboratory; Bengt F. Friberg, consulting engineer; J. D. Lindsay, Illinois Division of Highways; L. W. Teller, Bureau of Public Roads; and W. Van Breemen, New Jersey State Highway Department.

Richard C. Elstner and Eivind Hognestad

"Shearing Strength of Reinforced Concrete Slabs," p. 29, is the joint contribution of Richard C. Elstner and Eivind Hognestad.

Mr. Elstner, formerly research associate in theoretical and applied mechanics, University of Illinois, now is associate development engineer, Research and Development Laboratories, Portland Cement Assn., Chicago.

He received his BS in civil engineering from Rose Polytechnic Institute in 1947. After 3 years of teaching at Rose Polytechnic Institute and the University of Hawaii he began research work on various reinforced concrete projects at the University of Illinois. In 1953 he received his MS from the University of Illinois.

Dr. Hognestad is manager, Structural Development Section, Portland Cement Assn., Chicago. Prior to joining the PCA staff in 1953, Dr. Hognestad was research associate professor, Department of Theoretical and Applied Mechanics, University of Illinois.

He obtained his MS in civil engineering from the University of Illinois, and the degrees of civil engineer and doctor of technical sciences from the Norwegian Institute of Technology. In 1947 he received a research appointment at the University of Illinois where he worked on various projects pertaining to concrete.

Dr. Hognestad and Mr. Elstner were two of the four co-authors presented the ACI Wason Medal for noteworthy research in 1956.

Thomas Cholnoky

"Prestressed Concrete Pavement for Airfields," p. 59, is by Thomas Cholnoky, vice-president, Sinjon, Inc., Greenwich, Conn.

Mr. Cholnoky graduated from the Polytechnic Institute of Budapest in 1945. After graduation he became assistant in the Department of Bridge Building in the same school. Until 1948 he was engaged in several major bridge design projects in addition to his teaching assignments.

In 1949 he worked as a research engineer in the concrete division of the Institute Technique de Batiment et des Travaux Publics, Paris. In 1950 he was employed by D. B. Steinman, New York, as a designer. In the same year he joined F. R. Harris, Inc., consulting engineers, where he became project engineer and head of the design and planning division. As such, he was in charge of the design of waterfront structures, floating drydocks, and other concrete structures. In 1955 he joined Sinjon, Inc., but was retained by F. R. Harris, Inc., as a special consultant.

Mr. Cholnoky has been an ACI member since 1951. He is a junior member of ASCE, and a registered professional engineer in New York.

George W. Housner

George W. Housner, Division of Engineering, California Institute of Technology, Pasadena, is the author of "Earthquake Resistant Design Based on Dynamic Properties of Earthquakes," p. 85.

Dr. Housner received his BS from the University of Michigan and his PhD from the California Institute of Technology. From 1934-40 he was employed as a design engineer. During World War II he served with the U. S. 15th Air Force. He has been with the California Institute of Technology since 1945.

Dr. Housner has written numerous articles on engineering seismology. He is a member of the Earthquake Engineering Research Institute and a member of the USCGS Advisory Committee on Engineering Seismology.

James A. Cheney

"Structural Analysis by Dynamic Load Parameters," p. 99, is written by James A. Cheney, engineer, Missile Systems Division, Lockheed Aircraft Corp., Los Angeles.

Mr. Cheney graduated from the University of California at Los Angeles in 1951. Subsequently he was employed by the UCLA Engineering Research Department, working on air force and navy sponsored research. He received his MS in 1953. Since that time he has worked for L. T. Evans and the Missile Systems Division, Lockheed Aircraft Corp.

The ideas presented in his paper are an outgrowth of research done on the response of elastic beams to impulsive loading which was sponsored by the U. S. Naval Civil Engineering Research and Evaluation Laboratory, Port Hueneme, Calif., and directed by Prof. W. T. Thompson of UCLA.

S. J. Chamberlin

"Spacing of Reinforcement in Beams," p. 113, is contributed by S. J. Chamberlin, professor of theoretical and applied mechanics, Iowa State College, Ames.

Professor Chamberlin's professional experience includes work with the Missouri Pacific Railroad and the Illinois Division of Highways. For several years he taught drawing at the Burlington Junior College, and joined the faculty of Iowa State College in 1936. His work includes both teaching and research.

He received his BS in civil engineering from the University of Illinois in 1928 and his MS, majoring in highway and railway engineering, from Iowa State in 1931.

Professor Chamberlin has been an ACI member since 1940 and is chairman, ACI Committee 115, Research, and a member of ACI Committee 711, Precast Floor Systems for Houses. In 1939 he received the ACI Wason Medal for the "most meritorious paper."

New Members

The Board of Direction approved 104 Individual applications, 5 Corporations, 10 Juniors, and 12 Students, making a total of 131 new members. Considering losses due to resignations, deaths, and nonpayment of dues, the total membership on June 1 was 7881.

Individual

BARNUM, WILLIAM M., Minneapolis, Minn. (Testing Engr., Northern States Power Co.)
BARTELS, CARL F., Dubuque, Iowa (Cons. Engr., Bartels & McMahan Engrg. Co.)
BATTEY, GEORGE E., JR., Burbank, Calif. (Gen. Field Engr., PCA, Los Angeles)
BERTUCH, GEORGE, Montreal, Canada (Est., Douglas Bremner Constr. Co.)
BONDALE, D. S. Bihar, India (C. E., Hindustan Construction Co. Ltd., Ganga Bridge Works)
BOUVY, J. J. B. J. J., The Hague, Netherlands (I. B. I. S.)
BROWNSTEN, SAMUEL E., Crown Point, Ind. (Surveyor & Eng., Lake County)
BUEHNER, JOHN, Salt Lake City, Utah (Gen. Mgr., Buehner Block Co.)
CALVA CUADRILLA, MAX, Mexico City, Mexico (Struct. Engr., Aceros Ecatepec)
CARSWELL, H. A., Calgary, Canada (Mgr., C. C. Parker & Assocs., Ltd.)
CHELIUS, LUKE F., Reading, Pa. (Proj. Engr., Gilbert Assocs.)
CHEN, CHIA-TSUN, Cleveland, Ohio (Designer, Arthur G. McKee Co.)
CLANTON, JACK R., Seattle, Wash. (Assoc. Prof. of Civil Engrg., Univ. of Wash.)
CLARKE, GEORGE S., JR., Savannah, Ga. (Sec.-Treas., Cement Products Co.)
CUMBUS, GEORGE W., Greenville, S. C., (Head, Struct. Design Dept., J. E. Sirrine Co.,)
DEAS, THORNTON, Atlanta, Ga. (Arch., Abrew & Robeson, Inc.)
DILL, H. G., Columbus, Ohio (Cons. Engr.)
DRIGGS, KEITH H., Salt Lake City, Utah (Engr., Utah, State Road Comm.)
DURAZO, HUMBURTO SOTO, Hermosillo, Mexico (Gen. Mgr., Cemento Portland Nacional, S. A.)
EGAZARIAN, MANOOG A., Bronx, N. Y. (Struct. Engr., Burns & Roe, Inc., New York)
EIBER, ROLLIN R., Wilmette, Ill. (Asst. Dist. Mgr., The Austin Co., Chicago)
EPSTEIN, EDWIN H., San Francisco, Calif. (Sr. Engr., Bechtel Corp.)
FISK, RONALD JAMES, Cape Town, South Africa (Mgr., Cape Regional Office, The Concrete Assn.)
FLAUGHER, HAYDEN A., Park Forest, Ill. (Struct. Engr., The Austin Co., Chicago)
FOLEY, JAMES RICHARD, Trenton, Mich, (Vice-Pres., Michigan Foundation Co., Inc.)
FOUQUET, MICHEL, Paris, France (Engr., E. T. P., Office Central de Chauffe Rationnelle)
FOX, GERARD F., Mineola, L. I., N. Y. (Bridge Designer, Howard, Needles, Tammen & Bergendoff, New York)
FREEDMAN, A. R., Philadelphia, Pa. (Proj. Engr., Radio Corp. of America, Missile & Radar Section, Moorestown, N. J.)
FROEMMING, B. C., Milwaukee, Wis. (Mgr., Central Ready-Mixed Concrete Co.)
FRUCHTMAN, IRWIN, Brooklyn, N. Y. (Struct. Engr., Andrews, Clark & Buckley, New York)
GERMER, CHARLES B., Clayton, Mo. (Field Engr., Alpha Portland Cement Co., St. Louis)
GRAY, WILLIAM R., Cleveland, Ohio (Chf. Struct. Engr. McGeorge-Hargett & Assoc.)
GRIMBLE, L. G., Edmonton, Canada (Partner, Struct. Design, Stanley, Grimble, Roblin, Ltd.)
GUERRERO, Y TORRES, JEHOVA, Mexico City, Mexico (C. E., Techos, S. A.)
GUSTAFERRO, ARMAND H., Chicago, Ill. (Engr., Struct. & Railways Bureau, PCA)
HAW, VICTOR A., Ottawa, Canada (Head, Constr. Matls. Section, Mines Branch, Dept. Mines & Technical Surveys)
HEDRICK, WYATT C., Fort Worth, Texas (Wyatt C. Hedrick, Arch. & Engr.)
HENDRICKSON, W. C., Brainerd, Minn. (Stegner-Hendrickson, Archs. & Engrs.)
JAHR, THURSTON R., Dearborn, Mich. (Arch., Jahr-Anderson Assoc.)
JOHNSON, H. D., Montreal, Canada (Gen. Supv., Donald Inspection, Ltd.)
JONES, F. NORMAN, Davenport, Calif. (Supt., Pacific Coast Aggregates, Santa Cruz Cement Div.)
KNIGHT, CHARLES H., JR., Monterey Park, Calif. (Field Repres., PCA, Los Angeles)
KELLY, KEITH A., Baltimore, Md. (Asst. Chf. Engr., Baker-Wibberley & Assocs., Inc.)
KOONTZ, CARL H., Worcester, Mass. (Asst. Prof. of Civil Engr., Worcester Polytechnic Institute)
KRAUSE, ROBERT H., Fairview Park, Ohio (C.vil Engr. & Surveying)
LABORDE-MILAA, M. JEAN, Paris, France (Engr., Societe Generale d'Exploitations Industrielles)
LAWRENCE, ROBERT R., West Covina, Calif. (Design Engr., Aerojet General Corp., Arch. Engr. Div.)
LIBMAN, SOLOMAN, Chicago Ill. (Struct. Designer, Austin Co.)
MACGREGOR, DAVID, Auckland, New Zealand (Struct. Engr., Engineer's Dept., Auckland Harbour Board)
MADISON, JULIAN C., Cleveland, Ohio (Struct. Engr., Madison-Madison, Archs., Engrs.)
MARTINSON, R. A., Minneapolis, Minn. (C. E., Pfeifer & Schultz, Engrs.)
MAYERON, BEN, Minneapolis, Minn. (Cons. Engr.)
MCDONALD, ARTHUR L., Detroit, Mich. (Squad Leader, Industrial Engrg. Dept., Giffels & Vallet, Inc.)
MCENARY, DAVID N., Minneapolis, Minn. (Struct. Engr., McEnary & Krafft, Archs.)
MCKAY, WILLIAM E., Bethpage, N. Y. (Plant Engr., Grumman Aircraft Engrg. Corp.)
MCKNIGHT, R. W., Winnipeg, Canada (Struct. Engr., W. L. Wardrop & Assocs.)
MCROY, WALLACE, Birmingham, Ala. (Struct. Engr.)
MERCHANT, JOHN L., San Mateo, Calif. (Struct. Engr., Donald F. Haines, AIA & Assoc., San Francisco)
MICHELSEN, JARL R., Sodertalje, Sweden (C. E., Prefab Industri A.-B.)
MILHAN, DAVID W., Mandeville, La. (Chf. Engr. Louisiana Bridge Co.)
MONSEY, ARTHUR, Salt Lake City, Utah (Cons. Engr.)
NETTER, LOUIS, Paris, France (Chf. Engr., Omnium Technique de L'Habitation)
OAKES, STANLEY P., Victoria, Canada (Chf. Designer, A. B. Sanderson & Co., Ltd.)
ORR, WILLIAM R., Fort Worth, Texas (Owner, Construction Service Co.)
OTT, ROBERT W., Euclid, Ohio (Supervising Engr., Struct. Design Section, Power Plant Design, Cleveland Electric Illum. Co., Cleveland)
OTTERSEN, HENRY M., Duluth, Minn. (Office Engr., Donovan Constr. Co., St. Paul)
OWEN, GORDON RYHS, Gisborne, New Zealand (Building Contr.)
PEGG, RONALD F., Melbourne, Australia (Gen. Mgr., Ready Mixed Concrete [Victoria] Pty. Ltd.)
PERRY, MARK J., Toronto, Canada (Struct. Engr., Kilborn Engrg.)

PICARDI, E. A., Toledo, Ohio (Chf. Struct. Engr. Bellman, Gillett & Richards)
POTTER, NATHANIEL R., JR., Honolulu, Hawaii (Salesman, Grace Brothers, Ltd.)
RATELLE, ROLLAND, Tel'Assomption, Canada (Concrete Insp., Laboratories Ind. Com. Montreal)
REESE, MARK G., Seattle, Wash. (Chf. of Production, W. C. Nickum & Sons)
RHOADS, J. PAUL, Jacksonville, Ill. (Partner, Caldwell-Rhoads Co.)
RIDE, RAFAEL VISO, Caracas, Venezuela (C. E. Instituto de la Ciudad Universitaria)
RIOS, ROBERTO VELEZ, Caparra Terrace, Puerto Rico (C. E., Dept. of Justice, Div. of Correction, San Juan, Puerto Rico)
RUTSKY, JOSEPH M., Seattle, Wash. (C. E., John Graham & Co.)
SAFARIAN, SARGIS SAKO, Detroit, Mich. (Struct. Engr., Plant Engrg., Crady, Inc., Royal Oak, Mich.)
SCHAEM, WILLIAM E., Arlington, Va. (Asst. Chf., Structures Branch, Engrg. Div., Military Constr., Office, Chf. of Engrs., Washington, D.C.)
SCHECHET, MANUEL M., Teaneck, N. J. (C. E., North Atlantic Div. of Corps of Engrs., New York)
SCHMIDT, WILLIAM, Chicago, Ill. (Struct. Engr.)
SELIN, MORRIS WILLIAM, Lincolnwood, Ill. (Struct. Engr., The Austin Co., Chicago)
SHINN, C. T., JR., North Miami, Fla. (Gen. Contr., Shinn Constr. Co.)
SHWE, OHN, No. Rangoon, Burma (Asst. Engr., National Housing Board)
SMITH, C. M., Hamilton, Canada (Proj. Mgr., H. K. Ferguson Co. of Canada, Ltd.)
SMITH, KEENER G., Painesville, Ohio (Arch., Engr., Green-Smith Assocs., Archs. & Engrs.)
SMOLIN, MICHAEL, Roselle Park, N. J. (Development Engr., Mearl Mfg. Corp.)
SQUIRE, EDWARD J., Syosset, L. I., New York (Cons. Engr., Lockwood, Kessler & Bartlett, Inc.)
STEIN, J. STEWART, Chicago, Ill. (Partner, Walter H. Sobel—J. Stewart Stein, Archs., Engrs.)
THAIN, WILLIAM GEORGE, Brisbane, Queensland, Australia (Designing Arch., Dept. of Pub. Wks.)
TOLLEFSON, CYRUS N., San Francisco, Calif. (Distr. Mgr., Pittsburgh Testing Laboratory)
TOWNSEND, GEORGE B., St. Paul, Minn. (Partner, Bettenburg, Townsend, Stolte & Comb, Archs. & Engrs.)
TRINIDAD, ADOLPH A., JR., Yonkers, N. Y. (Squad Leader, Andrews, Clark & Buckley, New York)
TROXEL, REED A., Toledo, Ohio (Struct. Engr. Bellman, Gillett & Richards)
UMPIERRE, HUMBERTO A., Santurce, Puerto Rico (Public Eldgs. Maint. Engr., PWD)
VENTURO, ANTHONY, Paterson, N. J. (Matls. Engr., Corps of Engrs. Field Lab., New York Distr., New York)
WAGNER, CARL, Orlando, Fla. (Group Leader, Struct., Fla. Branch Office, The Girdler Co.)
WHISENHUNT, WILLIAM ROBERT, JR., Cincinnati, Ohio (Partner, Berylex of Ohio)
WISMER, HARRY R., Cleveland, Ohio (Chf. Est., The Albert M. Higley Co.)
WOLF, WILLIAM H., Denver, Colo. (Supv. Engr. U. S. B. R.)
WOOD, T. W., Tallahassee, Fla. (Secy. & Gen. Mgr., Hanson, Wood & Hoel, Ind., Inc.)
YANNETT, FRANK T., Syracuse, N. Y. (Sales Engr., Johns-Manville Products Corp., New York)
YIKE, DANIEL W., Duluth, Ga. (Tech. Engr., Dewey & Almy Chem. Co., Cambridge, Mass.)
ZARRELLA, DOMINIC A., Staten Island, N. Y. (Struct. Designer, Moran, Proctor, Mueser & Rutledge, New York)

Corporation

BETON-UND MONIERBAU A-G, Dusseldorf, Germany (E. H. Walter Nakonz, Pres.)
CAMPBELL-HARRIS, INC., Harrisburg, Pa. (Robert H. Harris, Pres.)
DE LEUW, CATHER & COMPANY, Chicago, Ill. (L. Nordlow Rian, Chf. Struct. Engr.)
INDIANA MINERAL AGGREGATE ASSOCIATION, INC., Indianapolis, Ind. (Ralph E. Simpson, Engr., Director)
TORISTEG STEEL CORP., Luxembourg, Germany (Stefan Soretz)

Junior

ARGUELLES, PEDRO GARCIA, Habana, Cuba (Struct. Engr., Saenz-Cancio-Martin)
CLARK, JOHN G., Montreal, Canada (Soils Engr., Donald Inspection Ltd.)
DABBAGH, RAMZI, Baghdad, Iraq (Asst. Engr., Al-Khazen, Cons. Engrs.)
ESQUIVEL, JUAN M., San Jose, Costa Rica (Engr., Juan Dent, Jr.)
GLOCKNER, PETER, Medicine Hat, Canada (Struct. Design Engr., C. C. Parker & Assocs., Ltd., Edmonton)
GOLUB, HARVEY, Johnson City, N.Y. (Struct. Designer, William H. McFarland, Engr., Binghamton, N. Y.)
JOHNSON, ROLAND V., Minneapolis, Minn. (Engr., John E. Meyer, Struct. Engr.)
KNIGHT, ROBERT C., Mobile, Ala. (C. E., International Paper Co., Southern Kraft Div.)
MELTON, AUBREY A., San Francisco, Calif. (Jr. C. E. Div. of San Francisco Bay Toll Crossings, Berkeley, Calif.)
ROMAIN, JEAN, Port au Prince, Haiti (W. I.) (C. E., E. H. Marhoefer Jr., Co., Franklin Park, Ill.)

Student

BALEK, ARTHUR J., Notre Dame, Ind. (Univ. of Notre Dame)
BEATTY, CHARLES I., Wilmette, Ill. (Northwestern Univ.)
BICKING, JOE J., Tulsa, Okla. (Oklahoma A & M)
CASILLAS, G. DE L., JUAN, Urbana, Ill. (Res. Asst., Univ. of Ill.)
GLASOW, THOMAS A., St. Paul, Minn. (Univ. of Minn.)
GRAND LEIDENZ, HAROLDO, Caracas, Venezuela (Universidad Central de Venezuela)
JOY, THOMAS W., Winchester, Mass. (MIT)
LUSCHE, ROBERT E., Laramie, Wyo. (Univ. of Wyo.)
MCGINNIS, BILLY D., Cheyenne, Wyo. (Univ. of Wyo.)
MILLS, DARRELL W., Cheyenne, Wyo. (Univ. of Wyo.)
OVERLY, JACK CARLTON, Angola, Ind. (Tri-State College)
GOMEZ-TRUEBA, ANGEL, Urbana, Ill. (Univ. of Ill.)

CONCRETE BRIEFS

will appear again in the August Journal, featuring "The Effect of Carbon Dioxide on Cement Paste."

Tools, Materials, Services

Under this heading note is made of producer literature of presumed technical interest (and available from its source for the asking) to ACI users of tools, equipment, materials, accessories, and special services.

Washing and screening plant

A stationary washing and screening plant designed for production of up to 100 tons per hr of washed sand and gravel is being manufactured by Pioneer Engineering Works, Inc. Model 365W can be equipped to turn out up to four sizes plus oversize of washed gravel and one size of washed sand simultaneously.

The plant includes the following units as standard equipment: a 24G mechanical feeder and 24 in. x 40-ft feeder conveyor (to revolving scrubber and screen); 42 in. x 4-ft revolving scrubber in combination with a 42 in. x 12-ft revolving screen; 30 in. x 25-ft single screw dehydrator; 18 in. x 50-ft sand delivery conveyor; 18 in. x 105-ft feeder conveyor (to vibrating screen); 4 x 12-ft three-deck vibrating screen; and two 21-cu yd bins with partitions. Listed as optional equipment are: a 1036 jaw crusher and an 18 in. x 85-ft return conveyor which can be added when reduction of oversize is desired; a 21-cu yd bin which can be substituted for the bent at the head end of the sand delivery conveyor; and an 18 in. wide conveyor of desired length which can be added to stockpile pea gravel from the revolving screen.

Material flow through the plant begins with regulated feed into the scrubber section of the revolving scrubber-screen where it is thoroughly washed. It then enters the screening section, equipped with sand jacket, for further washing and separation of fines and impurities from the gravel. Pea gravel may here be removed, rejected, or kept, as desired. Sand, fines, and impurities pass through the sand jacket into the Eagle dehydrator where clean sand is taken out, to be then conveyed to stockpile or bin.

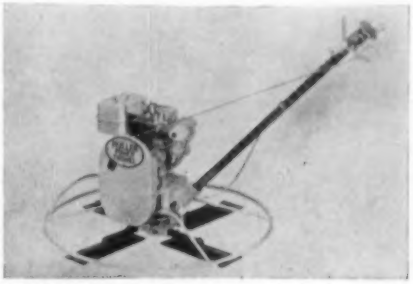
Gravel retained by the revolving screen goes by conveyor to the three-deck vibrating screen where spray bars on the top and bottom decks further wash and rinse it and where up to three sizes and oversize of gravel can be separated and chuted into bins. Oversize can be chuted to crusher unit and return conveyor (optional). Water consumption runs from 500 to 750 gal. per min., depending on the nature and amount of raw material fed to the plant.—Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.

Masonry wall reinforcement

Results of pull, side pressure, and shrinkage crack tests on concrete masonry wall panels using joint reinforcement are reported in Bulletin No. 200, Adrian Peerless, Inc. Specifications and recommended uses for Wal-Lock are given.—Adrian Peerless, Inc., 1428 East Michigan, Adrian, Mich.

Tarpaulins

A complete line of Herculite tarpaulins and coverings specifically designed for the concrete pipe industry is being produced by Fellowcraft Engineering Corp. The tarpaulins are composed of a plastic covering over nylon fabric. They are said to be mildew-proof, tear-resistant, rot-proof, noncombustible, oil-repellant, and lightweight. Being nonporous and heat insulating, the tarpaulins are said to cut steam curing time in half.—Fellowcraft Engineering Corp., Dept. CP, 140 Little St, Belleville, N. J.



Power trowels

Muller Machinery Co., Inc., has introduced a line of power trowels. Most notable feature is the use of four blades, instead of the conventional three, in all sizes—24, 29, 34, and 44 in. The manufacturer states that four blades reduce vibration and lateral pull away from the work, resulting in less fatigue for the operator and smoother finishing. Blade adjustment, engine throttle, and power throwout are at top of handle. Separate floating and finishing blades are standard equipment.—Muller Machinery Co., Inc., Metuchen, N. J.

Truck hoist body

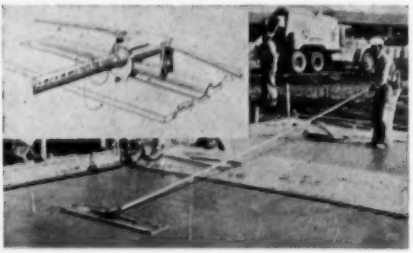
Designed to reduce handling costs for block, brick, and other materials, a truck body, Hydrahoist, made by Russell Manufacturing Co., mechanizes loading and unloading operations through hydraulic power activated by the truck engine. With a bridge-type superstructure of lightweight tubular steel, adjustable cables, working over roller bearing trolley wheels, transmit power for lifting and moving as the trolley telescopes forward or backward. Controls at the rear permit one man to regulate vertical and horizontal movement. The truck body can be loaded by fork lifts from side or rear. Lifting or lowering is at the rate of 6 in. per sec for loads up to 8,000 lb.—Russell Manufacturing Co., 1328 Maple Ave., Haddon Heights, N. J.

Horizontal shoring

A horizontal form support is being marketed by Universal Builders Supply Co., Inc. It requires no vertical supports. Built in three telescoping sections, they have a camber adjustment to assure level floors. Shores weigh about 8 lb per ft and are available in sizes that will span up to 29 ft 6 in.—Universal Builders Supply Co., Inc., 51 East 42nd St., New York 17, N. Y.

Reversible impact mill

Poor & Co. has announced that it will market a secondary impact crusher under the Hy-Ton trademark. The crusher features synchronized adjustment of upper and lower concentric breaker blocks; a hydraulic method of adjusting, removing, and replacing bearings; and heavy internal flywheel end discs. It is claimed to be capable of producing a uniform size cubical product at a maximum rate of 700 tons per hr.—Poor & Co., Crusher Engineering Division, 400 Architects Bldg., Philadelphia 3, Pa.



Bull float

A new type bull float has been added to Creative Metals Corp.'s line of concrete placing and finishing equipment. The float gets the name "cam-tilt" bull float from a cam located in the strong-back. By twisting the handle the tilt of the float is altered to give any desired tilt. This handle twist adjustment compensates for length of handle being used and for height most convenient to the workman. The handle is of springy, special wall, heat-treated aluminum tubing which telescopes one section within another to give any length from 12 to 22 ft. Floats of steel or wood, either in 4 or 5 ft lengths, are available. —Creative Metals Corp., 1290 Powell St., Emeryville, Calif.

Forms

Applications and features of Atlas Compo forms for concrete construction are outlined in a catalog issued by Irvington Form and Tank Corp.—Irvington Form and Tank Corp., 20 Vesey St., New York, N. Y.

Hose and belting

Boston Woven Hose & Rubber Co. has issued a 12-page catalog listing its construction line of mechanical rubber products, including concrete, water, and air hoses and conveyor belting. Data on types, sizes, diameters, and cutaway views are included.—Boston Woven Hose & Rubber Co., Dept. 3391E, PO Box 1071, Boston 3, Mass.

Fork-lift truck

Ottawa Steel Division of L. A. Young Spring & Wire Corp. has introduced the Ottawa Tract-to-Lift, in three basic models: TL-50 (5000-lb capacity), TL-60 (6000-lb capacity), and TL-70 (7000-lb capacity). Features include large pneumatic tires on the front drive axle, shuttle gear transmission with six speeds forward and six speeds reverse, and power steering. Unit is available with pallet forks of various length, as well as concrete block tine forks.—Ottawa Steel Division, L. A. Young Spring & Wire Corp., PO Box 39, Ottawa, Kan.

Prestressed concrete tanks

A 4-page technical bulletin, No. T-12, The Preload Co., Inc., describes current trends in design and construction of prestressed concrete tanks, including illustrations of typical tanks and standpipes.—The Preload Co., Inc., 211 East 37th St., New York 16, N. Y.

Perlite brand names

More than 150 brand names have been developed for expanded perlite products. They are listed in a "Perlite Brand Names Directory" issued by the Perlite Institute. The names were listed by 63 perlite processing companies.—Perlite Institute, 45 West 45th St., New York 36, N. Y.

Self-aligning platen for concrete testing

In testing materials for compressive stiffness or strength, difficulties frequently arise due to lack of alignment of platens and specimen surface. In the current issue of *Rubber Developments* there is a description of a device that was developed specifically for concrete testing, but lends itself to a variety of testing uses. This device has withstood several tests of 200 tons.

In addition to its use as a self-aligning unit in existing test machines, with the aid of a pressure gage the device could also serve as a load indicator since the total load is proportional to the hydraulic pressure. Also, due to the flexibility of the seal, the unit could be used for an application of load to a sample by hydraulic pressure from an external source. In the design described, the extent of platen movement is restricted to about ¼ in., but modification to increase this could easily be made.—Natural Rubber Bureau, 1631 K St., N. W., Washington 6, D. C.

Preformed calking ribbon

Parr Paint & Color Co. has developed Parflex, an extruded calking compound composed of 100 percent solids to eliminate shrinkage, in strip and roll form. It is said to adhere well to concrete, remain resilient to -30 F, and hold its form without running or sagging to 200 F. Off-white in color, it is available in extruded widths up to 3 in. wide and 1/16 to ¾ in. thick.—Parr Paint & Color Co., 18400 Syracuse Ave., Cleveland 10, Ohio

Removing "soft" rock

A patent issued to Commonwealth Engineering Co. of Ohio describes a method of separating hard rock from soft rock in concrete aggregates. The soft rock is not wasted but turned into a finely divided powder that can be used as fines in concrete construction. Essentially, the method consists of soaking a mixture of hard and soft rock in water that contains a wetting agent. Soft rock absorbs this agent; hard rock doesn't. Excess water is then removed. The mixture is put into a rotary kiln and heated to the softening point of the soft rock and tumbled. The hard rock pulverizes the soft rock. Several methods of control are described in the patent for regulating the size of the soft rock particles. After tumbling, the soft rock particles are drawn off leaving the large hard rock aggregate.—Commonwealth Engineering Co. of Ohio, 1771 Springfield St., Dayton 3, Ohio

Disposable fiber form

Delta Co. has introduced Deltaform, designed for inexpensive and simple forming of piers, short columns, column footings or pads. Packed flat in bundles, the fiber forms are light, easy to handle, and require little storage space. They are set quickly by opening, standing in place, and are ready for placing concrete. No bracing is said to be necessary. Being disposable, forms can be left in place if desired. Units are delivered in precut lengths.—Delta Co., 333 West 24th Place, Chicago, Ill.

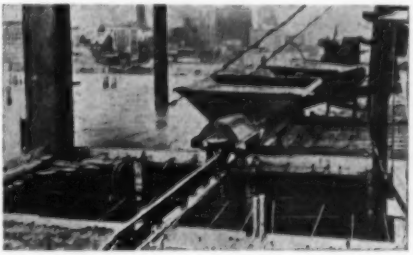
Joint sealer

Another joint sealer for applying cold joint sealing compounds to newly sawed control joints in highway and airport pavements has been announced by Clipper Manufacturing Co. The Clipper CP-300 is a ready-to-use unit requiring only connection to a suitable air compressor. It is equipped with an air pump consisting of a 6-in. diameter air cylinder and piston. The reciprocating action is automatically actuated by an air valve. An extension to the air pump is connected to a foot valve.

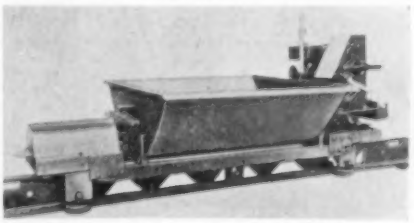
The pumping action is as follows: When the piston in the air pump goes up, material is scooped into the foot valve. On the down stroke of the air piston, material is prevented from going back into the drum by a "chopping" check valve, and is instead forced out through the material hose, the applicator bar and nozzle, into the joint. This check valve is a feature of the Clipper CP-300 and the CP-400 cold applied joint sealer. It consists of two cylindrical surfaces which have slots in them. When these two surfaces move against each other, they produce a cut-off or chopping action. This valve will cut stringy fibers (asbestos filler) as well as push small clay or sand particles (filler) out of the way, due to its chopping action. Features on the Clipper CP-300 include the air controls, the accumulator, and the spreader shoe. —Clipper Manufacturing Co., Suite 657, 2800 Warwick, Kansas City, Mo.

Materials transporter

Completely different in idea and method of operation, the Rex Railporter, a portable transport for construction materials, manufactured by Chain Belt Co., runs on a single rail. The Railporter is loaded at the point of supply and sent on its way by engaging a clutch lever. It follows the rail unattended to its destination where it stops automatically. Workers discharge the hopper, engage the clutch, and the unit returns automatically to the loading point.



The unit maintains stability on the single rail by means of rollers which ride the sides of the rail. Automatic stops are accomplished by setting a stop-bolt through the rail where a stop is desired. The stop-bolt automatically trips the Railporter clutch as the unit passes over it, and a brake is actuated automatically. The single rail consists of sections (4, 6, or 12 ft) which are supported at each joint by adjustable stands. Rail sections are easily set by two men (100 ft of track in 20 min) over any type of ground condition. A slip-pin connection joins the rail sections in seconds. Switches and curved rail are also available for various rail layouts.



The unit is self-propelled and operates with one clutch lever for forward and reverse. The hopper has a carrying capacity of 1400 lb or 13 cu ft liquid level. The unit travels at a speed in excess of 300 ft per min in either direction. Power is supplied by a 6-hp air-cooled gasoline engine. A trailer unit identical to the power unit, but without engine and gearbox, may be coupled to the power unit to double carrying capacity. Bulletin No. 56-47 gives details on the unit.—Chain Belt Co., 4600 West Greenfield Ave., Milwaukee 1, Wis.

Swimming pool data book

Modern Swimming Pool Co., Inc., has published a 52-page catalog and data book of swimming pool supplies, chemicals, and equipment. It contains data, working drawings, photographs, and prices of every item

needed to build a residential or public pool, or to equip and maintain an existing pool. There is a section on pressure filter systems for both private and public pools; charts that enable one to select the proper size filter; and detailed information about the new "buried type" filters for residential pools where space is limited. There is also a section on proper pool care and maintenance, and detailed descriptions of approved water-treatment chemicals.—Modern Swimming Pool Co., Inc., Dept. 109, 1 Holland Ave., White Plains, N. Y.

Errata—Ornamented concrete

The "Tools, Materials, Services" item on ornamented concrete, March 1956 JOURNAL, gave the impression that a layer of colored concrete was cast over an existing slab. While such a procedure is possible, the manufacturer points out that standard practice is to have color dusted directly on the slab, after which brick and tile patterns are stamped on the fresh, colored concrete.—Burbank-Wasserman Co., 566 Commercial St., San Francisco 11, Calif.

DISCUSSION PROCEEDINGS V. 52

Discussion closed July 1, 1956

Mar. Jl. '56

Properties of High-Density Concrete Made with Iron Aggregate—Harold S. Davis, Frederick L. Browne, and Harry C. Witter

Sustained Load Strength of Eccentrically Loaded Short Reinforced Columns—I. M. Viest, R. C. Elstner, and E. Hognestad

Two Prestressed Concrete Bridges with Hollow Girders of Precast Vacuum-Treated Elements—R. Morandi and F. Piccinini

Load Capacity of Concrete Beams in Bending—Ake Holmberg

Effect of Chemical Nature of Aggregate on Strength of Steam-Cured Portland Cement Mortars—T. Thorvaldson

Mass Production of Prestressed Structural Concrete in Sweden—Henning Collborg

Physical Incompatibility of Matrix and Aggregate in Concrete—G. M. Smith

Discussion closes August 1, 1956

Apr. Jl. '56

Bonneville Dam Stilling Basin Repaired after 17 Years' Service—Roy R. Clark

Design Constants for Beams of Variable Section—Max W. Strauss

Cracking in Reinforced Concrete Flexural Members—Arthur P. Clark

Specific Volume of Evaporable Water in Hardened Portland Cement Pastes—L. E. Copeland

Investigation of Stud Shear Connectors for Composite Concrete and Steel T-Beams—I. M. Viest

Discussion closes September 1, 1956

May Jl. '56

Building Code Requirements for Reinforced Concrete (ACI 318-56)—ACI Committee 318

Basis for Classifying Deleterious Characteristics of Concrete Aggregate Materials—E. G. Swenson and V. Chaly

Manufacturing Methods in Construction—Donald M. MacLeay

Discussion closes September 1, 1956

June Jl. '56

Recommended Practice for Winter Concreting—ACI Committee 604
Tensile Crack Exposure Tests of Stressed Reinforced Concrete Beams—Thomas B. Kennedy
Building Frames in Prestressed Concrete—David P. Billington
Autogenous Healing of Cement Paste—Kenneth R. Lauer and Floyd O. Slate
Analysis and Testing of Translational Shells—Mario G. Salvadori
Air Entrainment in Mortars—G. M. Bruere

DISCUSSION PROCEEDINGS V. 53

Discussion closes November 1, 1956

July Jl. '56

Structural Design Considerations for Pavement Joints—ACI Committee 325, Subcommittee III
Shearing Strength of Reinforced Concrete Slabs—Richard C. Elstner and Eivind Hognestad
Prestressed Concrete Pavement for Airfields—Thomas Cholnoky
Earthquake Resistant Design Based on Dynamic Properties of Earthquakes George W. Housner
Structural Analysis by Dynamic Load Parameters—James A. Cheney
Spacing of Reinforcement in Beams—S. J. Chamberlin

Montreal . . .

ACI Regional Meeting, the first to be held in Canada, will focus on problems of particular interest to northeastern states and eastern Canada. Inspection trips include construction sites on the St. Lawrence Seaway.

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Bibliography on Prestressed Concrete (1955)

ACI-ASCE Joint Committee 323, Prestressed Reinforced Concrete. This 103-page book lists more than 2100 American and foreign literature references on the subject of prestressed concrete, published 1896 into 1955. A separate section lists some 75 United States, British, German and French patents. The 8½ x 11-in. format is also punched for easy filing in three-ring binders. Price $2.00. A supplement, containing the new material, is available at 35 cents for those who purchased the 1954 edition.

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ACI Manual of Concrete Inspection (1955)

This 232-page pocket-size book, bound in durable cover, sets up what good practice requires of concrete inspectors and background information on the "why" of such good practice. This third edition was revised and extended by Committee 611 to include new practices evolved since the second edition of 1941. Price—$2.50, to ACI Members—$1.50.

Reinforced Concrete Design Handbook (1955)

An extensive revision by a reconstituted Committee 317 of the original well-known edition of 1939. Tables are revised to reflect changes in range of working stresses encountered in general practice. The original objective to reduce the design of members under combined bending and axial load to the same simple form as is used in the solution of common flexural problems is retained. Price—$3.50, to ACI Members—$2.00.

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